

The drawings stand objected to under 37 CFR § 1.83(a) as failing to show features of the invention specified in the claims. Specifically, the Office Action indicates that the feature concerning the pitches of the corresponding grating portions is not shown in the figures. Applicant notes that the specific recitation of that feature in the claims has been amended and that the feature is shown in, at least, Figure 2.

Claims 13 and 15 stand objected to because of informalities. Applicant has amended those claims to attend to the matters noted in the Office Action as giving rise to the objection.

Claims 7-12 and 14-17 stand rejected under 35 U.S.C. § 102(e) over U.S. Patent No. 6,157,488 (Ishii). Claim 13 stands rejected under 35 U.S.C. § 103 over the Ishii patent in view of U.S. Patent No. 5,995,279 (Ogino, et al.). Applicant traverses these rejections.

As recited in independent Claim 7, Applicant's invention is directed to a diffraction optical element in which a plurality of diffraction gratings are laminated. The optical element includes first and second diffraction gratings, each of which is formed on a curved surface and is made of a material with a dispersion different from that of the material of the other. The pitches at positions of tips of corresponding grating portions of the first and second diffraction gratings are equal over the area of use.

The Ishii patent is directed to a diffractive optical element including a stack of first, second and third optical regions. The Office Action cites this patent as showing, in Figure 12, a first diffraction grating (101) formed on a curved surface and a second diffraction grating (103) formed on a curved surface. The Office Action also states that the pitches of the diffraction gratings formed on those two surfaces are equal. However, while Figure 12 of the Ishii patent shows that outermost surfaces 303 and 304 of the optical

element are curved surfaces, Applicant submits that Figure 12 does not show the shape of the surfaces on which are formed relief patterns 201 and 202 (i.e., the patterns of diffraction gratings 101 and 103). In addition, Applicant submits that it is reasonable to believe that the surfaces on which those diffraction gratings are formed are flat because the tips of each of those diffraction gratings are aligned in a straight line rather than a curved line.

Accordingly, Applicant submits that the Ishii patent fails to disclose or suggest at least the features of a first diffraction grating which is formed on curved surface and a second diffraction grating which is formed on curved surface, wherein the pitches at positions of tips of corresponding grating portions of the first and second diffraction gratings are equal over the area of use, as recited in independent Claim 7.

The Office Action cites the Ogino, et al. patent merely as describing that a diffraction grating may be formed on a cemented surface of a cemented lens. Applicant submits that this patent fails to remedy the above-discussed deficiencies of the Ichii patent.

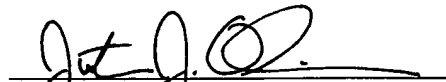
Accordingly, Applicant submits that independent Claim 7 is allowable over the documents of record and requests withdrawal of the rejections under 35 U.S.C. §§ 102 and 103.

The remaining claims under consideration in the present application are dependent claims which depend from independent Claim 7, and thus are allowable over the documents of record for reasons noted above with respect to Claim 7. In addition, each recites features of the invention still further distinguishing it from the applied documents. Applicant requests favorable and independent consideration thereof.

Applicant submits that all outstanding matters in this application have been attended to and that the application is in condition for allowance.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

  
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**VERSIONS WITH MARKINGS TO SHOW  
CHANGES MADE TO THE CLAIMS**

7. (Amended) A diffraction optical element in which a plurality of diffraction gratings are laminated, comprising:

a first diffraction grating which is formed on a curved surface with a material of a predetermined dispersion; and

a second diffraction grating which is formed on a curved surface with a material of a dispersion different from that of the first diffraction grating and adjacent to the first diffraction grating,

wherein the pitches at positions of tips of corresponding grating portions of the first and second diffraction gratings are equal over the [range] area of use.

13. (Amended) A diffraction optical element according to Claim 7, which is formed on [the] a cemented surface of a cemented lens.

15. (Amended) An optical system using [a] the diffraction optical element according to Claim 7.